3.0 Transportation Analysis

The Traffic Analysis Technical Report (CH2M Hill, 2013)[1] completed for this Draft Environmental Impact Statement (EIS) includes evaluation and comparison of No Build and Build Alternatives with respect to traffic volumes, traffic operations, travel times, and safety based on forecasted traffic demand. The Existing US 53 Alternative would maintain the existing highway corridor and, therefore, is the "baseline" for analysis comparison in this chapter.

This chapter also identifies modes of transportation other than motor vehicles that are present within the study area (see Figure 3.1-1) and compares how each would be affected by the alternatives.

3.1 Traffic Forecast and Capacity Analysis

3.1.1 Traffic Volumes

Study area traffic volumes for the existing US 53 connection (2009) and forecasted years 2017 (project completion) and 2037 (20 years after completion) are shown in Figure 3.1-1. Growth in traffic is expected throughout the study area with increases for US 53 and adjacent roadways at about one percent per year. For details of the analysis, refer to the Traffic Analysis Technical Report (CH2M Hill, 2013).[2]

3.1.1.1 No Build Alternative (Easement Agreement Area Closed)

Traffic volumes are expected to change under the No Build Alternative. Closure of the US 53 easement segment would result in the official rerouting of US 53 along existing MN 37, Co. 7, and US 169 (Figure 3.1-2). It was also assumed that local traffic would use Co. 101 as a shortcut, at least up through 2024, at which time the mine has indicated potential closure of Co. 101 to through traffic.[3]

Estimated daily traffic volumes on US 53 under the No Build Alternative are shown on Figure 3.1-3. These estimates are based on peak hour field counts (May 2012) collected at US 53 interchanges of MN 37 and MN 135, along with expected travel pattern shifts due to the road closure. It was assumed that approximately 10 percent of daily traffic that would have used the US 53 easement would use routes outside of the study area, based on local understanding of the regional roadway network and availability of other potential travel routes. It is expected that local traffic between Gilbert and Virginia would not use the designated No Build Alternative route but would instead use MN 37 (between Gilbert and Eveleth) and Co. 101 (while it remains open) to access Co. 7.[4]

Removal of the US 53 easement segment from the area's transportation network is projected to result in substantial shifts in traffic volumes onto the surrounding highways in future years 2017 and 2037. Notable changes include large decreases along existing US 53 south of Virginia, as well as adjacent to the Midway neighborhood and Eveleth; large increases in traffic volumes along the designated US 53 reroute; and large increases in traffic volumes along the segment of MN 37 (between Gilbert and Eveleth) and Co. 101.

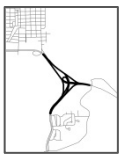
[1] Available at http://www.dot.state.mn.us/d1/projects/hwy53relocation/TechnicalReports.html

[2] Available at http://www.dot.state.mn.us/d1/projects/hwy53relocation/TechnicalReports.html

[3] A segment of Co. 101 is located on an easement through UTAC's environmental setting boundary. Per the Co. 101 agreement terms, UTAC can revoke the easement to the County at any time.

[4] See page 2 of the Traffic Analysis Technical Report (CH2M Hill, 2013) and the Highway 53 Relocation Economic Impact Study (McComb Group and SEH, 2014) for more details.

3.1.1.2 Existing US 53 Alternative (Easement Agreement Area Remains Open)



This alternative represents the existing condition. The Existing US 53 Alternative does not change traffic volumes as it causes no change in traffic conditions.

3.1.1.3 Build Alternatives

Daily traffic volumes for the Build Alternatives are expected to be similar to the traffic volumes on the existing easement segment, shown on Figure 3.1-1. Peak hour turning volumes at the intersections of 2nd Avenue and MN 135, both of which are key, at-grade intersections included in all three Build Alternatives (see Figures 3.1-4 and 3.1-5), were estimated using a combination of the field counts collected in May 2012, Automatic Traffic Recorder data on US 53, and daily traffic volumes. For more information on peak hour turning volumes, see the Traffic Analysis Technical Report (CH2M Hill, 2013).

An at-grade intersection at US 53 and 2nd Avenue would increase access to US 53 over what is currently provided by the partial interchange at this location. Specifically, access to northbound US 53 from 2nd Avenue and to 2nd Avenue from southbound US 53 are movements that are not currently provided but would be provided with an at-grade intersection. Under Alternative M-1, new access to US 53 would be provided for Southern Drive.

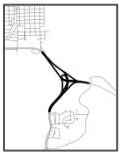
Under Alternative M-1 and the Alternative E-1A and E-2 Intersection Options, an at-grade intersection at US 53 and MN 135 would modify the access provided by the current full interchange (Figures 3.1-4 and 3.1-5). The current interchange provides free-flowing access for all movements between MN 135 and US 53. Alternative M-1 (with signal) would maintain full access, and the Alternative E-1A and E-2 Intersection Options (without signal) would involve a ¾ intersection with no left turns allowed from westbound MN 135 to southbound US 53. The Interchange Option under Alternatives E-1A and E-2 would provide free-flowing access for all movements between MN 135 and US 53 as is provided under existing conditions (see Figures 2.3-5 and 2.3-7). Maintenance of existing access at US 53 and MN 135 has been strongly supported by the public.

3.1.2 Traffic Operations

Roadway operations were estimated using a Level of Service (LOS) measure that is based on the amount of congestion experienced by motorists. Congestion is rated from A to F, with LOS A representing free flow with no congestion and LOS F representing high levels of congestion with very long delays and slow speeds. The LOS D/LOS E boundary was used as the US 53 performance measure for LOS.

A planning level review of capacity, including assumptions based on the Highway Capacity Manual and the Minnesota Department of Transportation's (MnDOT's) Automatic Traffic Recorder data, was used to calculate LOS for the segments of US 53 listed in Table 3.1-1 for year of construction (2017) and future 20 year conditions (2037). Review of these volumes versus the expected capacity of a four-lane divided roadway with turn lanes (approximately 35,000 ADT with LOS D or better) shows that this configuration provides adequate capacity for existing and future traffic volumes on US 53.

3.1.2.1 Existing US 53 Alternative (Easement Agreement Area Remains Open)



This alternative represents the existing condition. The Existing US 53 Alternative maintains the existing roadway geometry, and, therefore, it does not change traffic operations or cause changes in traffic conditions. The existing highway would continue to operate adequately under future traffic volumes, as shown in Table 3.1-1.

Table 3.1-1. Existing US 53 Segment Level of Service Analysis (Existing Conditions)

US 53 Segment Start	US 53 Segment End	2017 Volume/LOS	2037 Volume/LOS
South of MN 37 S Interchange	MN 37 N Interchange (Eveleth)	12,950 / B	15,350 / B
MN 37 N Interchange (Eveleth)	MN 135 Interchange	17,400 / B	20,600 / C
MN 135 Interchange	2nd Avenue Interchange	24,200 / C	28,650 / D
2nd Avenue Interchange	12th Avenue Signal	17,600 / B	20,850 / C

3.1.2.2 No Build Alternative (Easement Agreement Area Closed)

A capacity assessment was completed for the highways that make up the US 53 reroute (designated and unofficial) under the No Build Alternative: MN 37 east-west segment, Co. 7, Co. 101, and US 169 (Figure 3.1-2). Because the No Build Alternative roads are largely two-lane rural roads, this assessment was done to determine if existing configurations could accommodate rerouted US 53 traffic volumes.

Table 3.1-2 summarizes the results, including traffic volumes in years 2009, 2017, and 2037; roadway geometry; and corresponding LOS. MN 37, Co. 7, Co. 101, and US 169 all currently operate at acceptable LOS with existing traffic volumes. However, four of the segments would operate at LOS E/F, which indicates high levels of congestion, in both 2017 and 2037 under the No Build Alternative where US 53 traffic would be introduced and no capacity would be added to these highways.

Table 3.1-2. No Build Segment Level of Service Analysis

	Corridor					
	MN 37	Co. 7			Co. 101	US 169
Segment Start	US 53 S Interchange	MN 37	Co. 101	Southern Drive (Mt. Iron)	US 53	Co. 7
Segment End	Co. 7	Co. 101	Southern Drive (Mt. Iron)	US 169	Co. 7	US 53 Interchange
Roadway Geometry	2-lane undivided with turn lanes	2-lane undivided with turn lanes	2-lane undivided with turn lanes	2-lane undivided with turn lanes	2-lane undivided with turn lanes	4-lane divided with turn lanes
2009 Existing Volume / LOS	3,250 / B	2,150 / A	2,250 / A	5,700 / C	5,700 / C	15,800 / B
2017 No Build Volume / LOS	10,200 / D	9,100 / C	23,200 / F	26,900 / F	20,100 / F	37,500 / E
2037 No Build Volume / LOS (Co. 101 Closed)	29,600 / F	28,200 / F	28,300 / F	32,800 / F	2,000 / A[A]	45,700 / F
2037 No Build Volume / LOS (Co. 101 Not Closed)	20,800 / F	19,400 / F	28,300 / F	32,800 / F	16,200 / F	45,700 / F

[A] The 2037 No Build Volume for Co. 101 is significantly lower than in 2017 because it is assumed that Co. 101 would be closed to through traffic in 2024.

3.1.2.3 Build Alternatives

Operational analysis of the existing US 53 corridor showed that the forecasted traffic volumes would be accommodated by a four-lane divided roadway and operate at acceptable LOS. It is assumed that Alternatives M-1, E-1A, and E-2, all of which are four-lane roadways, would also provide acceptable LOS.

One key difference between existing conditions and Alternatives M-1, E-1A, and E-2 is the intersections of US 53 with MN 135 and 2nd Avenue. It was assumed that the existing interchange at 2nd Avenue would not be retained under the Build Alternatives; rather, an at-grade intersection would replace the existing interchange (see Figures 3.1-4 and 3.1-5). For Alternatives E-1A and E-2, at MN 135 both unsignalized and signalized at-grade intersection options (Intersection Option) and a grade-separated compressed diamond interchange option (Interchange Option) were addressed in the analysis.

An operational analysis using Synchro modeling software was conducted to determine whether estimated traffic volumes would be accommodated by at-grade intersections at 2nd Avenue and MN 135. Based on a planning level review of changes to local travel patterns and Synchro analysis results, a signalized intersection was assumed at 2nd Avenue for all Build Alternatives (Traffic Analysis Technical Report, CH2M Hill, 2013). The 2nd Avenue intersection would meet warrants for installation of a traffic signal in the build year (2017).

Operations at the US 53 and 2nd Avenue intersection vary by alternative. Alternatives E-1A and E-2 would have a three-legged intersection,[5] whereas Alternative M-1 would have a four-legged intersection that also provides access to Southern Drive (Figures 3.1-4 and 3.1-5). Replacing the existing interchange with an at-grade intersection would also introduce two movements that do not currently exist (access to northbound US 53 from 2nd Avenue and access to northbound 2nd Avenue from southbound US 53). A sensitivity analysis completed for this intersection found that operations are acceptable until peak hour turning movement volumes reach 600 vehicles. At this volume, the intersection would operate at LOS C, with some movements experiencing LOS F. Higher levels of turns may require dual left turn lanes for southbound US 53. The preliminary design of the intersection allows for a future addition of a second left turn lane. The LOS for the intersection of 2nd Avenue and US 53 with 600 turning vehicles in the peak hours in future year 2037 with a dual left turn lane would be LOS D.

- **Intersection and Interchange Options**

At US 53 and MN 135, both an intersection (under Alternative M-1, Alternative E-1A Intersection Option, and Alternative E-2 Intersection Option) and an interchange (Alternative E-1A Interchange Option and Alternative E-2 Interchange Option) would result in an acceptable LOS, both at project opening (2017) and in the future design year (2037) (Table 3.1-3). The intersection is anticipated to operate at LOS B with an at-grade signal and with an at-grade, non-signalized, restricted crossing U-turn (RCUT) intersection.[6] A compressed diamond interchange configuration would also operate at acceptable LOS (LOS A or LOS B) at the ramp terminal intersections (see Table 3.1-3).

[5] A three-legged intersection is an intersection with three approaches.

[6] An RCUT intersection restricts left turns within an intersection, requiring traffic to make a U-turn farther downstream. In this case, southbound left-turning vehicles on MN 135 would make a right turn (northbound) then a U-turn farther north on US 53.

Table 3.1-3. Intersection Level of Service – Year 2017 and 2037

Intersection and Volume Assumptions	2017 LOS AM (PM)	2037 LOS AM (PM)
MN 135/US 53 Intersection Options – Alternatives M-1, E-1A, and E-2		
MN 135 Signalized At-Grade Intersection	B (B)	B (B)
MN 135 RCUT Intersection[A]	A (B)	B (B)
MN 135 Compressed Diamond Interchange[A, B] SB Exit Ramp Terminal NB Exit Ramp Terminal	 A (A) B (B)	 A (A) B (B)
2nd Avenue Intersection - Alternative M-1 (four-legged intersection)		
2nd Avenue and US 53 (200 vehicles assumed for unknown turning volumes)	B (C)	C (C)
2nd Avenue and US 53 (400 vehicles assumed for unknown turning volumes)	C (D)	C (E)
2nd Avenue and US 53 (600 vehicles assumed for unknown turning volumes)	D (E)	F (F; with dual left turn lanes: D)
2nd Avenue Intersection - Alternatives E-1A and E-2 (three-legged intersection)		
2nd Avenue and US 53 (200 vehicles assumed for unknown turning volumes)	B (B)	B (C)
2nd Avenue and US 53 (400 vehicles assumed for unknown turning volumes)	C (C)	C (C)
2nd Avenue and US 53 (600 vehicles assumed for unknown turning volumes)	C (D)	D (F; with dual left turn lanes: D)

[A] As unsignalized intersections, the LOS shown is the LOS of the worst case approach at the intersection.
[B] An interchange option is not feasible for Alternative M-1. The levels of service for the compressed diamond interchange at MN 135 only apply to Alternatives E-1A and E-2.

The Synchro model used to evaluate the intersection operations does not account for the grade differences of the road between these options, or the potential increase in truck volumes anticipated through this intersection. With an interchange, the east approach would be at a two percent grade; with an intersection, the grade would be six percent or more. A steeper grade increases the difficulty of loaded semi-trucks turning left onto MN 135 in the winter (November to April).

3.1.3 Travel Times

Travel times for existing conditions and the alternatives were calculated based on the posted speed limits for all routes. Potential delays due to congestion or rail crossings were not accounted for in the calculations. For the No Build Alternative, there is potential for up to five additional minutes of delay due to three at-grade railroad crossings (see Section 3.2.1.3). Travel times for the four scenarios listed below were developed.

- Regional Travel (Table 3.1-4): travel time from just south of the southern MN 37 interchange to 18th Street north of Virginia via US 53 (via MN 37/Co.7 for the No Build Alternative)
- Eveleth to Virginia (Table 3.1-5): travel time to/from the intersection of Grant Avenue (Co. 302) and Pierce Street in Eveleth to Chestnut Street and 4th Avenue in downtown Virginia
- Gilbert to Virginia (Table 3.1-6): travel time to/from the intersection of MN 37 and MN 135 in Gilbert to the intersection of Chestnut Street and 4th Avenue in downtown Virginia
- Interregional Travel: travel time from Duluth to International Falls via US 53 (via MN 37/Co.7 for the No Build Alternative)

Table 3.1-4. Regional Travel Time – From MN 37 (South Interchange) to/from Virginia[A]

Route	From MN 37 (South Interchange) to Virginia		From Virginia to MN 37 (South Interchange)	
	Distance (miles)	Travel Time (minutes)	Distance (miles)	Travel Time (minutes)
Existing Condition	9.2	11.7	9.2	11.7
Existing US 53 Alternative	9.2	11.7	9.2	11.7
No Build Alternative via MN 37 to Co. 7	16.6 (+7.4)	21.5 (+9.8)	16.5 (+7.3)	21 (+9.3)
Alternative M-1	8.4 (-0.8)	11.8 (+0.1)	8.4 (-0.8)	11.5 (-0.2)
Alternatives E-1A and E-2	10.7 (+1.5)	14.5 (+2.8)	10.7 (+1.5)	14.5 (+2.8)

[A] Access to Chestnut Street and 4th Avenue was assumed via 2nd Avenue to 4th Street within Virginia except for the No Build Alternative that uses US 169, Hoover Road, Williams Addition Road, 8th and 9th Avenues, and 4th Street.
Note: numbers in parentheses indicate additional time compared to existing

Table 3.1-5. Local Travel Time – From Eveleth to/from Virginia[A]

Route	From Eveleth to Virginia		From Virginia to Eveleth	
	Distance (miles)	Travel Time (minutes)	Distance (miles)	Travel Time (minutes)
Existing Condition	5.0	10.2	5.0	8.4
Existing US 53 Alternative	5.0	10.2	5.0	8.4
No Build Alternative via Co. 101 to Co. 7	10.2 (+5.2)	16.7 (+6.5)	10.2 (+5.2)	17.6 (+9.2)
No Build Alternative via MN 37 to Co. 7	19.4 (+14.4)	25.9 (+15.7)	19.4 (+14.4)	26.0 (+17.6)
Alternative M-1	5.4 (+0.4)	11.7 (+1.5)	5.4 (+0.4)	10.5 (+2.1)
Alternatives E-1A and E-2	6.4 (+1.4)	12.8 (+2.6)	6.4 (+1.4)	11.9 (+3.5)

[A] Access to Chestnut Street and 4th Avenue was assumed via 2nd Avenue to 4th Street within Virginia except for the No Build Alternative that uses US 169, Hoover Road, Williams Addition Road, 8th and 9th Avenues, and 4th Street.
Note: numbers in parentheses indicate additional time compared to existing

Table 3.1-6. Local Travel Time – From Gilbert to/from Virginia[A]

Route	From Gilbert to Virginia		From Virginia to Gilbert	
	Distance (miles)	Travel Time (minutes)	Distance (miles)	Travel Time (minutes)
Existing Condition	4.9	8.5	5.3	8.2
Existing US 53 Alternative	4.9	8.5	5.3	8.2
No Build Alternative via Co. 101 to Co.7	14.7 (+9.8)	22.3 (+13.8)	14.7 (+9.8)	29.4 (+21.2)
No Build Alternative via MN 37 to Co. 7	22.0 (+17.1)	28.3 (+19.8)	22.0 (+16.7)	28.4 (+20.2)
Alternative M-1	6.4 (+1.5)	11.2 (+2.7)	6.4 (+1.5)	11.4 (+3.2)
Alternatives E-1A and E-2	6.2 (+1.3)	10.7 (+2.2)	6.2 (+1.3)	10.2 (+2)

[A] Travel time was calculated to/from the intersection of MN 37 and MN 135 in Gilbert to the intersection of Chestnut Street and 4th Avenue in Downtown Virginia
Note: numbers in parentheses indicate additional time compared to existing

Inter-regional travel times would be only slightly increased with the addition of a signalized intersection in place of the existing interchange at 2nd Avenue for Alternatives M-1, E-1A, and E-2. Using delays reported in the detailed intersection analysis, the average delay for through traffic on US 53 due to the addition of a signalized intersection, depending on the direction and time of day, ranges from one to two minutes in

the 2037 peak hours. Under the No Build Alternative, inter-regional travel times would increase six to 21 minutes. Considering the total inter-regional corridor between Duluth and International Falls is 163 miles, around three hours if a 55 mph average is used, the worst-case incremental increase in delay represents a one percent increase in total inter-regional travel time for the Build Alternatives and a 12 percent increase in total travel time for the No Build Alternative.

3.1.3.1 No Build Alternative (Easement Agreement Area Closed)

Travel distances and travel times would more than double under the No Build Alternative from Virginia to either Eveleth or Gilbert compared to existing conditions. Local travel time increases range from 6.5 to 21.2 minutes. This would negatively impact the connectivity of the Quad Cities.

3.1.3.2 Existing US 53 Alternative (Easement Agreement Area Remains Open)

Travel distances and travel times would not change compared to existing conditions under this alternative.

3.1.3.3 Build Alternatives



Travel times on Alternatives M-1, E-1A, and E-2 would generally be slightly higher than travel times today on US 53 due to delay at the additional signalized intersection(s) at MN 135 (Alternative M-1 only) and 2nd Avenue and due to minor increases in distance (Alternatives E-1A and E-2); however, this delay would not be substantial (approximately one to three minutes). However, the delay for left-turning vehicles turning to/from MN 135 would experience much greater delays with the unsignalized Intersection Option (under Alternative E-1A or E-2) than with the existing or proposed Interchange Option.

3.1.4 Safety

Five years of crash records (from 2007-2011) for US 53 between south MN 37 interchange (to/from the west) and the US 169 interchange were used to complete a safety analysis. Out of the three segments within the corridor, two had less than the average crash rates for comparable four-lane divided rural highways. One segment, US 53 between the north MN 37 interchange (to/from the east) and 12th Avenue, did experience a crash rate higher than the critical crash rate over the five-year study period. Review of the crash data suggests that the corridor experienced a higher than expected amount of snow/slush related crashes. MnDOT previously implemented safety strategies to counter the crashes, including a changeable message sign installed in the late 1990s, to warn of icy conditions.

Crash records for MN 37, MN 135, US 169, Co. 7, and Co. 101 were also analyzed. In general, both existing MN 37 and MN 135 include segments that have rates that are higher than would be expected for similar two-lane rural and urban roadway types. Specific issues identified in these corridors from the MnDOT Traffic Safety Fundamentals Handbook (2008, page A-20) include:

- For the rural segments of MN 135 and MN 37, run off the road crashes are the most common type of crash with 35 percent and 45 percent of the crashes, respectively. The state average crash rate for similar two-lane rural roadways is 31 percent.
- For the urban segment of MN 37 in Gilbert, the majority of the crashes (64 percent) are intersection related with right angle crashes making up 41 percent of the crashes. The state average crash rate for similar two-lane urban roadways is 21 percent.

3.1.4.1 No Build Alternative (Easement Agreement Area Closed)

Future safety issues along existing US 53 south of Virginia are not anticipated given that traffic volumes along this roadway are anticipated to substantially decrease with the No Build Alternative.

However, the segments of MN 37, MN 135, Co. 7, and Co. 101 that would either compose the rerouted US 53 under the No Build Alternative or be adjacent to these roads all currently have crash rates that are higher than state average crash rates for similar two-lane roadways. The increases in traffic volumes that are several magnitudes higher (see volumes in Table 3.1-2) than existing traffic volumes indicate that these safety issues would worsen under the No Build Alternative. The introduction of these higher traffic volumes would also raise highway safety concerns at three at-grade railroad crossings along the No Build Alternative route (one crossing on MN 37 and two crossings on Co. 7).

3.1.4.2 Existing US 53 Alternative (Easement Agreement Area Remains Open)

The existing US 53 corridor from MN 37 (East) to 12th Avenue experienced a higher than expected number of crashes during snowy or icy conditions in the past five years and is the basis of comparison for other alternatives. Current safety issues would not change under the Existing US 53 Alternative. MnDOT would continue implementation of its weather-related safety changeable message signs.

3.1.4.3 Build Alternatives



The existing US 53 corridor from MN 37 (East) to 12th Avenue experienced a higher than expected number of crashes during snowy or icy conditions in 2007 to 2011. Under the Build Alternatives, traffic volumes and road capacity would not change. MnDOT would continue implementation of its weather-related safety changeable message signs.

- Intersection and Interchange Options

For Alternatives E-1A and E-2, the at-grade Intersection Option and the compressed diamond Interchange Option at MN 135 and US 53 were compared using the Highway Safety Manual (HSM). The results for existing traffic volumes and forecast volumes for 2017 and 2037 showed virtually no difference in crash rates (see Table 3.1-7).

Table 3.1-7. Intersection and Interchange Crash Rate Comparison

Traffic Volume Year	Intersection Option (total crashes per year)	Interchange Option (total crashes per year)
2009	4.6	4.6
2017	5.1	5.0
2037	6.1	6.1

While the results were essentially the same between the Intersection Option and Interchange Option at the level of the HSM analysis for the years 2009, 2017, and 2037, this analysis does not account for the grade difference for the east approach between these options. The Intersection Option would require a much steeper grade (six percent compared to two percent for the Interchange Option) at the east approach, which would be expected to result in increased difficulty for loaded semi-trucks turning left onto US 53 in the winter (November to April). This difficulty would increase the potential for semi-truck/vehicle conflict at the intersection, which would increase crash risk and result in the intersection being the less desirable option based on safety.

3.1.5 Avoidance, Minimization, and Mitigation Measures

For the Existing US 53 and Build Alternatives, there would be no adverse effects on traffic volumes, traffic operations, travel times, or safety; therefore, no mitigation is proposed.

The No Build Alternative would adversely affect traffic volumes, traffic operations, travel times, and safety; however, by definition, the No Build Alternative would not include any mitigation measures.

3.2 Intermodal Transportation

3.2.1 Existing Conditions

3.2.1.1 Bicycles and Pedestrians

Virginia's Comprehensive Plan (December 1997) notes that the city has a substantial sidewalk system that accommodates pedestrians but lacks a similarly developed system for bicyclists. The Mesabi Trail, a shared use path, runs through the cities of Virginia and Gilbert (Figure 4.3-1 in Section 4.3). This 115-mile trail connects more than 25 communities in northern Minnesota from Ely to Grand Rapids. Within the study area, the trail parallels the US 53 easement segment and continues along the west side of the Rouchleau Pit.

3.2.1.2 Bus Transit

Arrowhead Transit, operated by the Arrowhead Economic Opportunity Agency (AEOA), provides scheduled bus service and Dial-A-Ride service in St. Louis County, including the city of Virginia. Scheduled public transit service is provided on weekdays, including service within Virginia and from Virginia to the cities of Babbit, Buhl, Chisholm, Duluth, Eveleth, Hibbing, and West Eveleth. According to the AEOA bus service schedule, there are two main routes which use the US 53 easement agreement segment daily from Monday through Friday. This includes five daily round trips between Eveleth and Virginia (2nd Ave ramp to/from Eveleth) and five daily round trips between Gilbert/Aurora and Virginia (MN 135 to/from the 2nd Ave ramp), resulting in 20 trips per day using this segment of US 53.

Arrowhead Transit's Dial-A-Ride service provides shared-ride, curb-to-curb transit within Virginia. There are no eligibility restrictions for these services. Rural Rides, which is not provided by Arrowhead Transit, provides work-related transportation services for low-income individuals in St. Louis County. Income guidelines apply for most of these services.

3.2.1.3 Rail

Railroad corridors owned by Canadian National (CN) and operated by its subsidiary Wisconsin Central are located in the vicinity of the No Build Alternative and cross existing roadways at three locations (one crossing on MN 37 and two crossings on Co. 7) (Figure 3.1-1). The at-grade railroad crossing on MN 37 is a main rail line with an average of 17 trains per day carrying approximately 136,000 tons per day (Minnesota Comprehensive Statewide Freight and Passenger Rail Plan, 2010). The other two crossings on Co. 7 are mine service lines, with eight trains per day at the crossing between MN 37 and Co. 101 and 11 trains at the rail crossing at the intersection of Co. 7 and Co. 101. Future growth is not anticipated on the rail lines that cross Co. 7 but is anticipated on the main rail line crossing MN 37 (Minnesota Comprehensive Statewide Freight and Passenger Rail Plan, 2010). With an expected growth of three percent per year in tonnage there would be an increase to 22 trains daily by 2017 and 39 trains by 2037.

3.2.1.4 Aviation

The publicly owned Eveleth-Virginia Airport is located approximately two miles southeast of Eveleth, just east of Co. 132 (Figure 1.0-1). This facility is owned and managed by a joint municipal commission with representatives from Eveleth and Virginia. The airport has two runways, one that is 4,200 feet long and one that is 2,550 feet long. The airport is located approximately five miles south of the project area, which means that the alternatives are outside of the area influenced by airport rules and regulations. This was verified through a check of the airport influence map for the Eveleth-Virginia Airport (January 1, 2010) that is available on MnDOT's Aeronautics and Aviation webpage.

3.2.1.5 Other Transportation Modes

Specialized modes of transportation, including school buses (from the Mountain Iron/Buhl, Eveleth, and Virginia school districts), ambulances (from Essentia Health-Virginia), and police and fire vehicles, all use the easement segment of US 53 to reach parts of the Quad Cities (see Section 4.7).

3.2.2 Intermodal Transportation Impacts

This section describes potential impacts that would occur to the transportation modes described above as a result of implementing each alternative. This section does not address impacts to those traveling by personal vehicle or truck on US 53, as these modes have been covered in Section 3.1. Trail-related impacts are also covered in greater detail in Section 4.3.

3.2.2.1 No Build Alternative (Easement Agreement Area Closed)

- **Bicycles and Pedestrians**

The No Build Alternative would not adversely affect current pedestrian/bicycle accommodations. MnDOT's action of vacating the US 53 easement segment (just southwest of the Rouchleau Pit), through which the Mesabi Trail runs, would not directly impact the Mesabi Trail. Potential trail impacts due to actions by others are discussed in Chapter 7: Cumulative Impacts. The termination of the MnDOT easement by RGGS/UTAC does not directly affect the Mesabi Trail.

- **Bus Transit**

The lengthened routes and times for those traveling from Virginia to points outside the community would affect existing transit service, particularly the scheduled bus service between downtown Virginia and the Eveleth and Gilbert/Aurora areas, adding a minimum of 10 to 20 minutes, respectively, to each trip (see the travel times noted in Tables 3.1-5 and 3.1-6).

- **Rail**

Three existing at-grade rail crossings would be part of the designated reroute of US 53 under the No Build Alternative (one on MN 37 and two on Co. 7). The No Build Alternative would not affect train travel; however, increasing traffic volumes on MN 37/Co. 7 would increase the safety risk to travelers at these at-grade crossings.

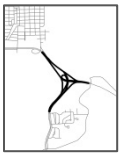
- **Aviation**

The No Build Alternative would not directly impact the Eveleth-Virginia Airport located southeast of Eveleth. However, some airport users could be affected by increased travel times to/from the airport.

- **Other Transportation Modes**

The No Build Alternative would negatively impact the ability of school buses, ambulances, and police and fire vehicles to efficiently connect to all parts of the Quad Cities. Travel times between downtown Virginia and the Eveleth and Gilbert/Aurora areas would be substantially increased (10 to 20 minutes per Tables 3.2-5 and 3.2-6), resulting in corresponding increases in response times of police, fire, and ambulance vehicles along with other modes of transportation to/from these areas (see Section 4.7).

3.2.2.2 Existing US 53 Alternative (Easement Agreement Area Remains Open)



This alternative, in which US 53 would continue to operate as it does today, would not adversely affect any of the multimodal transportation options considered in this chapter.

3.2.2.3 Alternative M-1

Bicycles and Pedestrians

MnDOT's action of vacating the US 53 easement segment (just southwest of the Rouchleau Pit), through which the Mesabi Trail runs, would not directly impact the Mesabi Trail. Potential trail impacts due to actions by others are discussed in Chapter 7: Cumulative Impacts. The termination of the MnDOT easement by RGGS/UTAC does not directly affect the Mesabi Trail.

Bus Transit

While introducing shorter (0.8 miles) travel distance and travel times, Alternative M-1 would not noticeably change the travel times of the existing transit service that is offered within the study area.

Rail

Existing railroad lines and crossings would not be impacted by Alternative M-1.

Aviation

Alternative M-1 would not impact the Eveleth-Virginia Airport located southeast of Eveleth.

Other Transportation Modes

Alternative M-1 would not noticeably affect the travel times of school buses or emergency service vehicles.

3.2.2.4 Alternative E-1A

Bicycles and Pedestrians

MnDOT's action of vacating the US 53 easement segment (just southwest of the Rouchleau Pit), through which the Mesabi Trail runs, would not directly impact the Mesabi Trail. Potential trail impacts by others are discussed in Chapter 7: Cumulative Impacts. The termination of the MnDOT easement by RGGS/UTAC does not directly affect the Mesabi Trail.

The Alternative E-1A alignment crosses the existing Mesabi Trail at several locations. These crossings would be consolidated into one crossing location for user safety, or Alternative E-1A could allow for the Mesabi Trail to be reconstructed via permit on the eastern edge of the new alignment as part of the project but funded by the St. Louis and Lake Counties Regional Railroad Authority (SLLCRRA) (see Section 4.3 for more details). Potential trail impacts by others are discussed in Chapter 7: Cumulative Impacts.

Bus Transit

While introducing slightly longer travel distance (approximately 1.3 to 1.5 miles) and travel times (approximately 2 to 3.5 minutes), Alternative E-1A would have a minor impact on the existing transit service that is offered within the study area.

Rail

Existing railroad lines and crossings would not be impacted by Alternative E-1A.

Aviation

Alternative E-1A would not impact the Eveleth-Virginia Airport located southeast of Eveleth (Figure 1.0-1) or substantially increase local travel time to/from the airport.

Other Transportation Modes

Alternative E-1A would have a minor (approximately two to 3.5 minute) increase to the travel times of school buses or emergency service vehicles.

3.2.2.5 Alternative E-2

Bicycles and Pedestrians

MnDOT's action of vacating the US 53 easement segment (just southwest of the Rouchleau Pit), through which the Mesabi Trail runs, would not directly impact the Mesabi Trail. Potential trail impacts by others are discussed in Chapter 7: Cumulative Impacts. The termination of the MnDOT easement by RGGS/UTAC does not directly affect the Mesabi Trail.

Alternative E-2 would cross the Mesabi Trail at several locations. These crossings would be consolidated into one crossing location for user safety, or Alternative E-2 could include an easement along the eastern edge of the new alignment for the Mesabi Trail to be reconstructed as part of the project but funded by the St. Louis and Lake Counties Regional Railroad Authority (SLLCRRA) (see Section 4.3 for more details). Additional design details are needed to determine how the trail would be relocated. The final design will be discussed in the Final EIS. Potential trail impacts by others are discussed in Chapter 7: Cumulative Impacts.

Bus Transit

While introducing slightly longer travel distance (approximately 1.3 to 1.5 miles) and travel times, Alternative E-2 would have a minor impact on the existing transit service that is offered within the study area.

Rail

Existing railroad lines and crossings would not be impacted by Alternative E-2.

Aviation

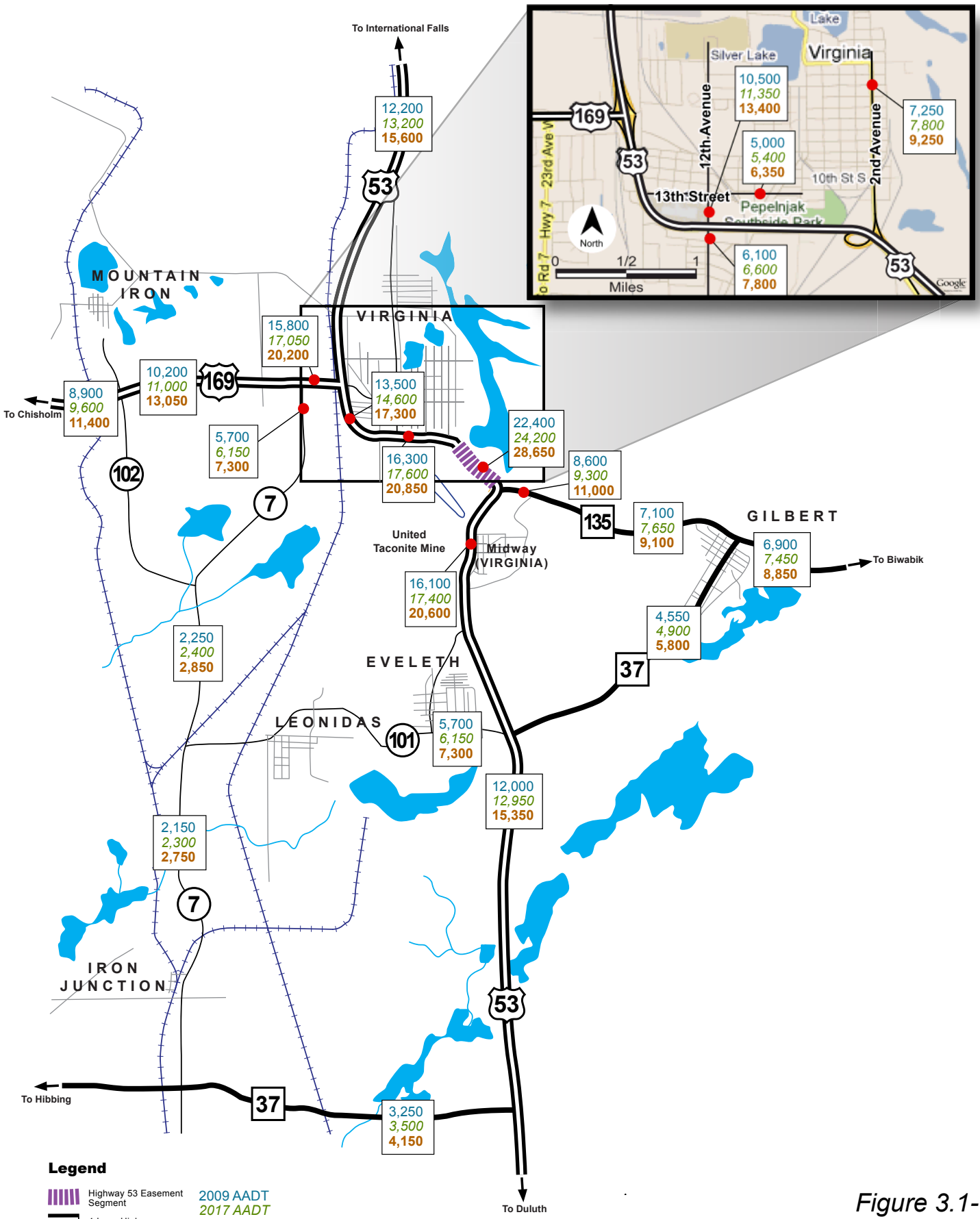
Alternative E-2 would not impact the Eveleth-Virginia Airport located southeast of Eveleth (Figure 1.0-1) or substantially increase local travel time to/from the airport.

Other Transportation Modes

Alternative E-2 would have a minor (approximately two to 3.5 minutes) increase to the travel times of school buses or emergency service vehicles.

3.2.3 Avoidance, Minimization, and Mitigation Measures

MnDOT would continue to use safety warning signs for all alternatives. The No Build Alternative would have substantial adverse impacts on railroad crossing safety; however, by definition, the No Build Alternative would not include any mitigation measures.

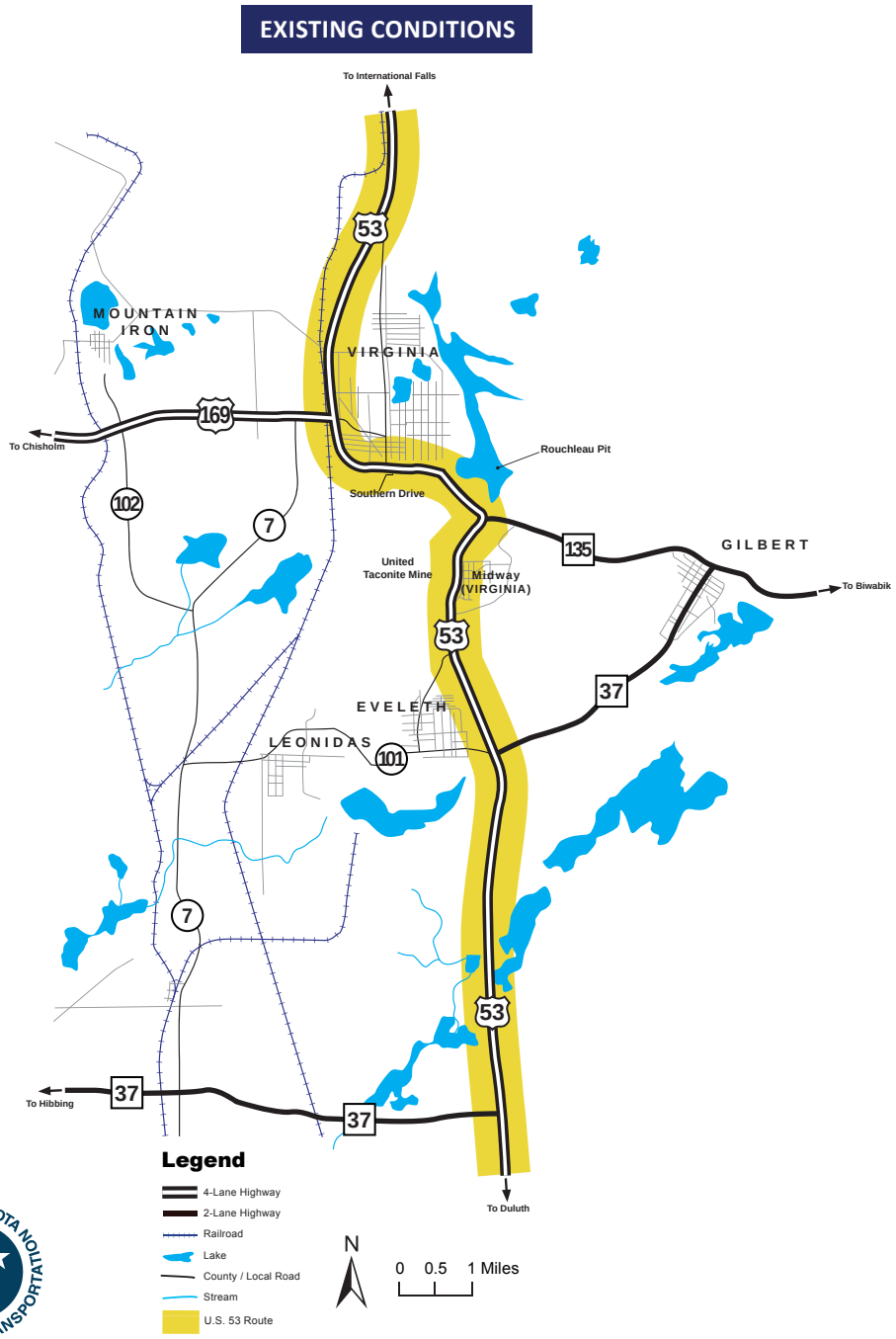


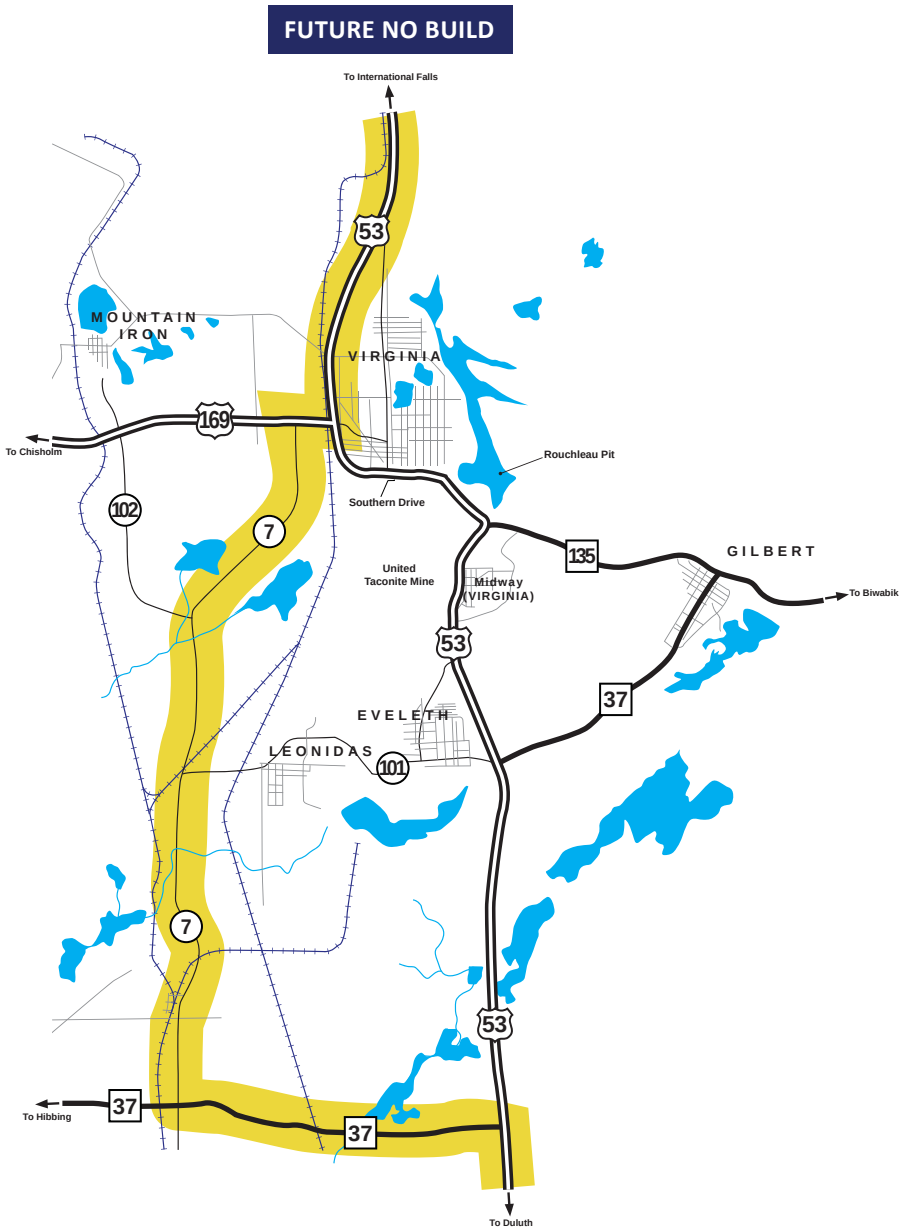
Source: Traffic Analysis Technical Report (2013)

December 2014

Figure 3.1-1
Existing and Forecast Traffic Volumes on US 53

US Highway 53 Virginia to Eveleth
Draft Environmental Impact Statement

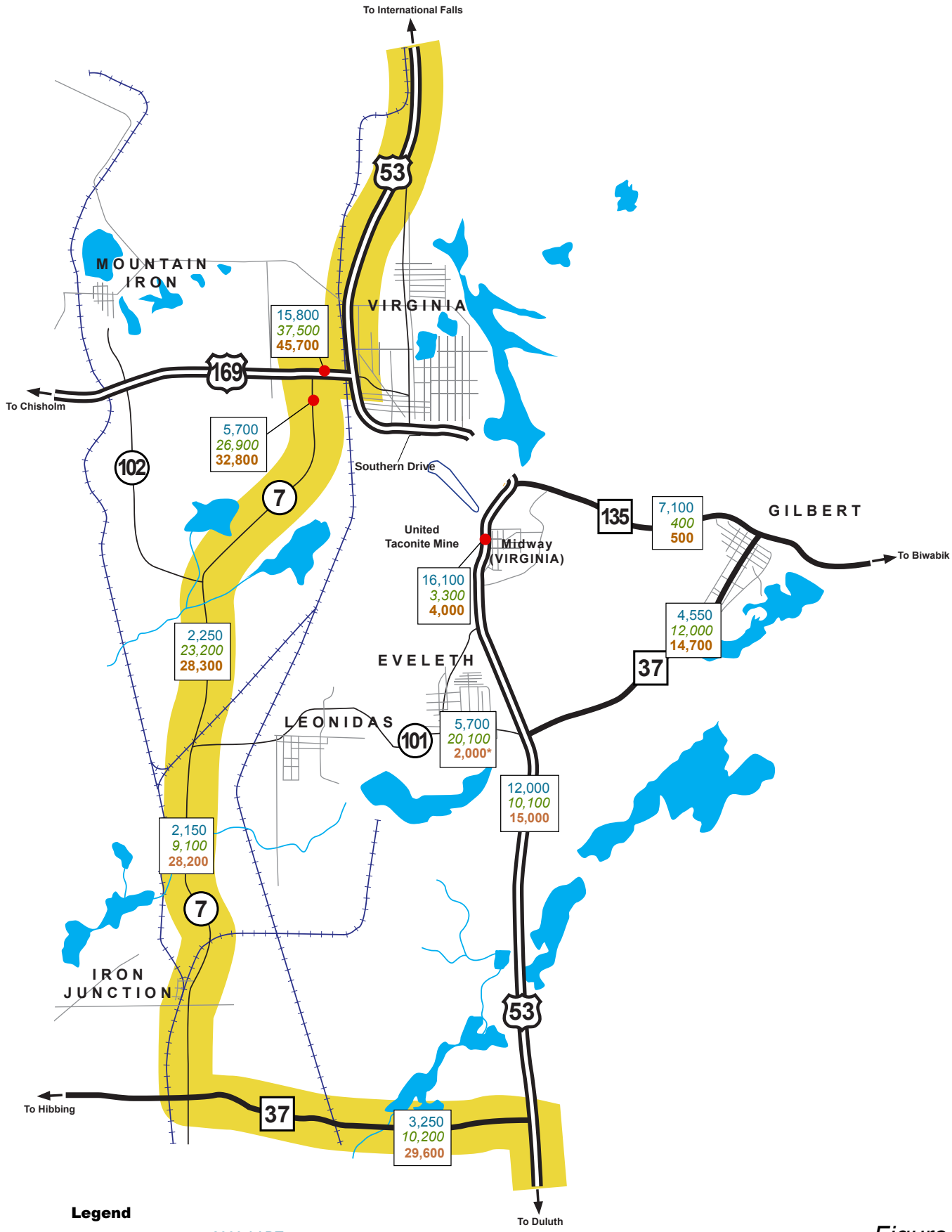




December 2014

Source: Traffic Analysis Technical Report (2013)

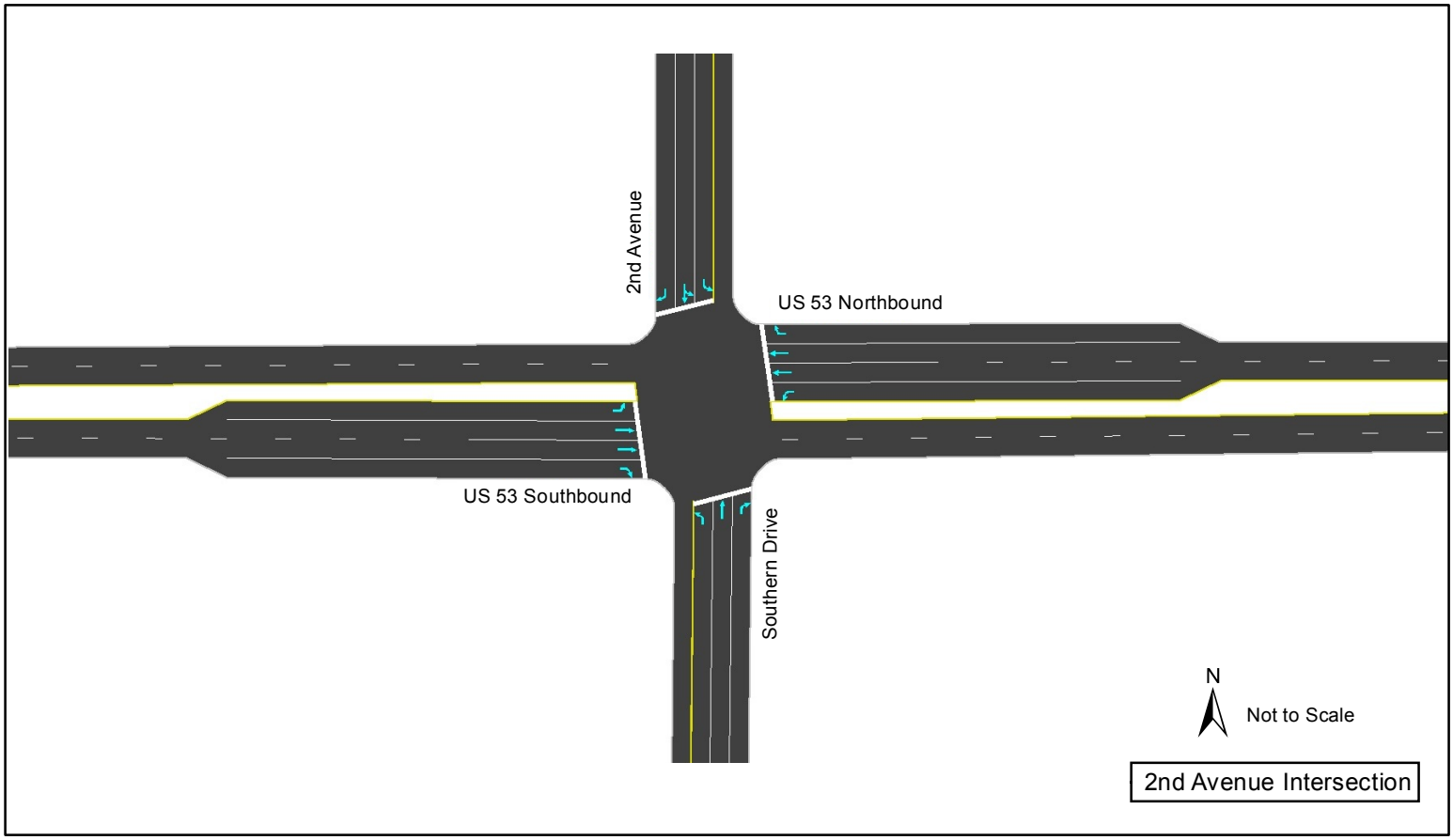
Figure 3.1-2
No Build Alternative Designated Reroute
US Highway 53 Virginia to Eveleth
Draft Environmental Impact Statement

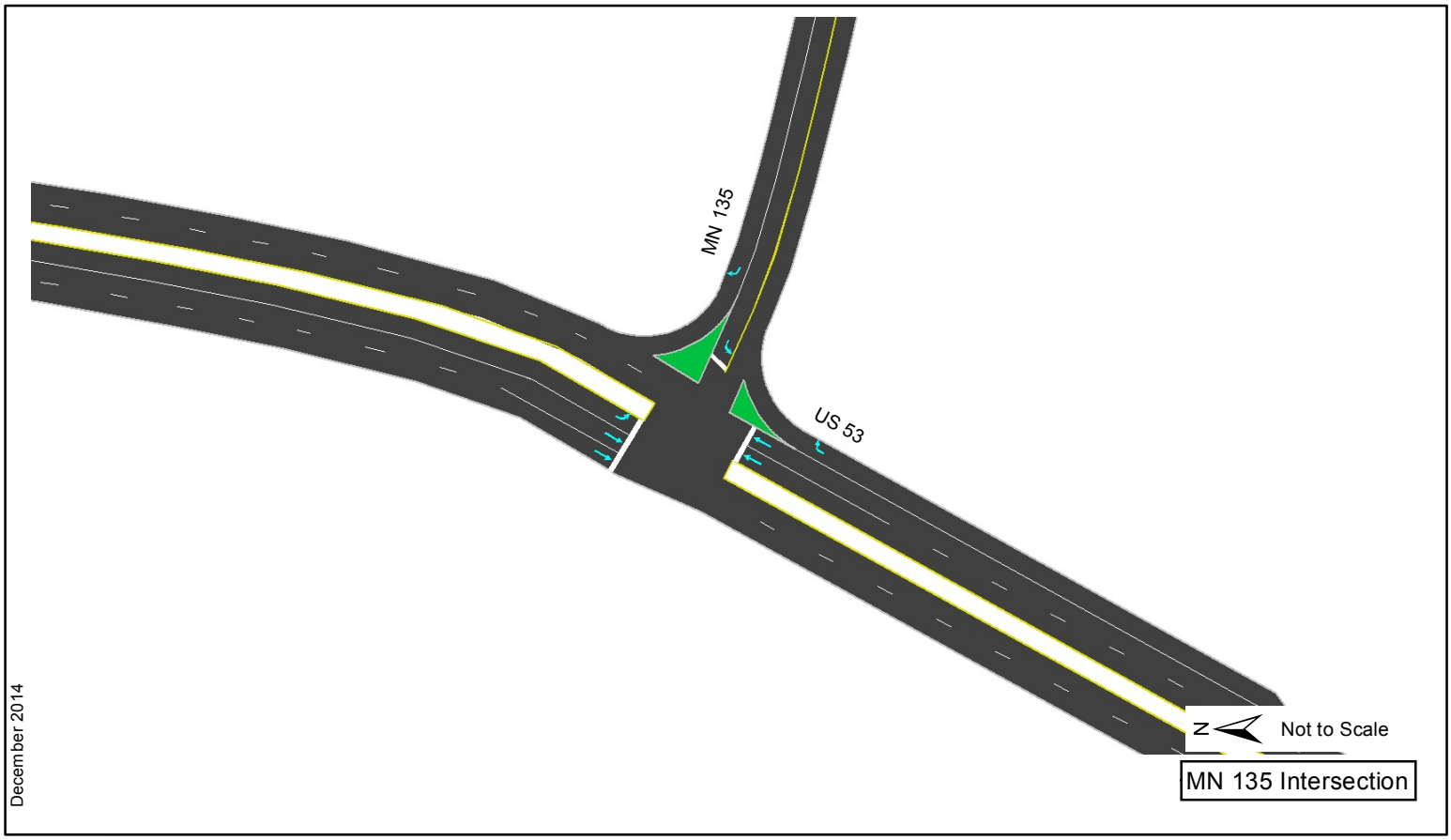


Source: Traffic Analysis Technical Report (2013)

December 2014

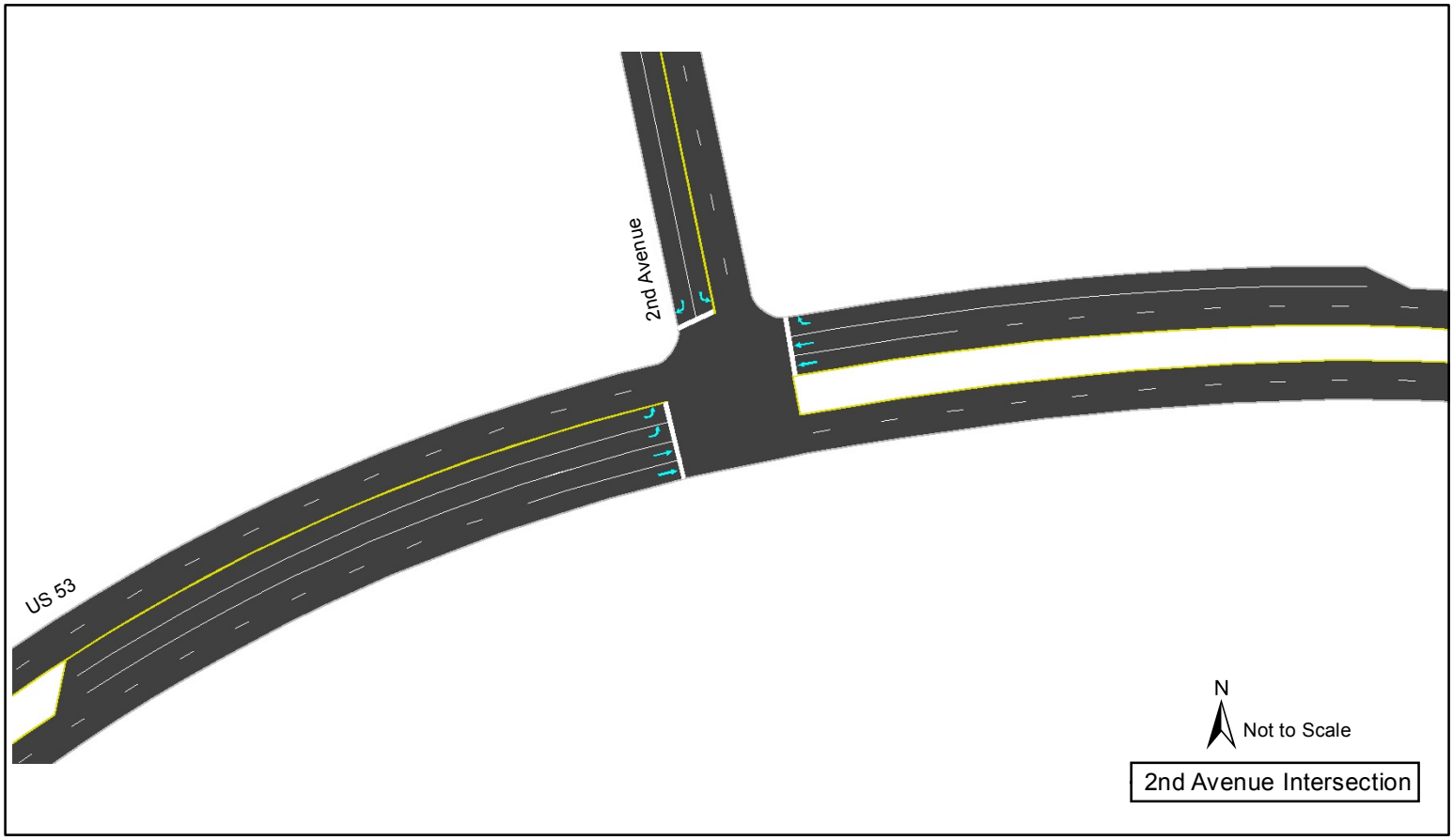
Figure 3.1-3
Representative Traffic Volumes for No Build Alternative
US Highway 53 Virginia to Eveleth
Draft Environmental Impact Statement

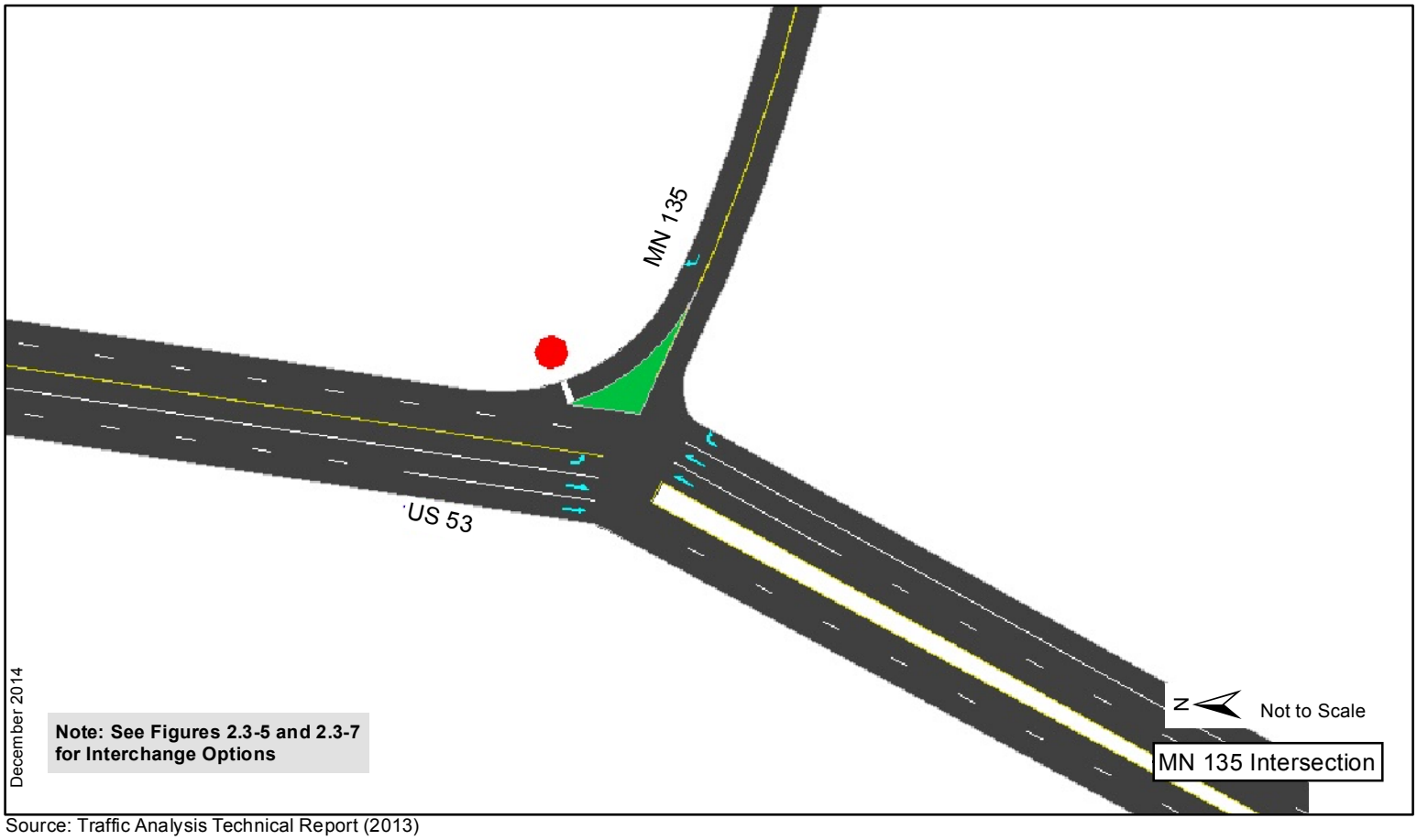




Source: Traffic Analysis Technical Report (2013)

Figure 3.1-4
Alternative M-1 Intersections
US Highway 53 Virginia to Eveleth
Draft Environmental Impact Statement





Source: Traffic Analysis Technical Report (2013)

Figure 3.1-5
Alternative E-1A and E-2 Intersection Options
US Highway 53 Virginia to Eveleth
Draft Environmental Impact Statement